CLAIMS

We claim:

1   1. A method for reduced spatial resolution transcoding of a compressed bitstream

2   of a sequence of frames of a video signal, comprising:

3   decoding the frames;

4   storing the decoded frames in a first frame buffer;

5   down-sampling the decoded frames to a reduced resolution;

6   storing the reduced resolution frames in a second frame buffer; and

7   partially encoding the reduced resolution frames to produce a reduced

8   resolution compressed bitstream of the video.

1   2. The method of claim 1 wherein the decoding further comprises:

2   variable length decoding of the bitstream to yield an output comprising full-

3   resolution motion vectors and quantized DCT coefficients for each block in each

4   frame;

5   inverse quantizing the quantized DCT coefficients for each block in each

6   frame;

7   applying an inverse DCT to the inverse quantized blocks of the frames; and

8   motion compensating with full resolution motion vectors of the stored

9   decoded frames.

1   3. The method of claim 1 wherein the partial encoding further comprises:

2   motion compensating with reduced resolution motion vectors of the stored

3   reduced resolution frames;

4   applying a DCT to the motion compensated difference of the reduced

5   resolution frames;

6   quantizing DCT blocks of the frames; and

7   variable length coding the quantized blocks of the frames.

1   4. The method of claim 2 wherein the motion compensating during the decoding

2   further comprises:

3   adding a full resolution motion compensated prediction of a previous

4   decoded frame to the current frame.

1   5. The method of claim 3 wherein the motion compensating during the partial

2   encoding further comprises:

3   subtracting a reduced resolution motion compensated prediction of a

4   previous reduced resolution frame from the current reduced resolution frame.

1   6. The method of claim 3 further comprising:

2   estimating the reduced resolution motion vectors from the reduced resolution

3   frames.

1   7. The method of claim 2 further comprising:

2   mapping the full-resolution motion vectors to the reduced resolution motion

3   vectors from the variable length decoded frames.

1   8. A closed-loop transcoder for reduced spatial resolution transcoding of a

2   compressed bitstream of a sequence of frames of a video signal, comprising:

3   a decoder with motion compensation using full resolution motion vectors

4   stored in a first frame buffer to generate partial decoded frames from the

5   compressed bitstream;

6   a down-conversion block to down-sample the decoded frames to reduced

7   resolution frames; and

8   a partial encoder with motion compensation using reduced resolution motion

9   vectors stored in a second frame buffer to generate a reduced spatial resolution

10   compressed bitstream of the video.